

WHAT IS CLAIMED IS:

1. A surgical instrument for anastomosis of first and second blood vessels, comprising:
  - 5 a housing having distal and proximal ends and an actuator disposed therebetween, the actuator including:
    - a handle which is moveable from a first position to at least one subsequent position; and
    - 10 a link assembly mechanically engaged with the handle and being moveable through a firing stroke in response to the movement of the handle from the first position to said at least one subsequent position;
    - 15 a disposable loading unit releasably attached to the distal end of the housing in mechanical cooperation with the actuator, the disposable loading unit including a plurality of surgical fasteners which deform upon movement of the actuator through the firing stroke.
2. A surgical instrument according to claim 1 wherein the link assembly includes at least three links.
  - 20 3. A surgical instrument according to claim 2 wherein the firing stroke of the handle and the link assembly includes at least:
    - a first, pre-firing stage wherein the links are disposed at an angle relative to a horizontal axis disposed through the housing;
    - 25 an intermediate stage wherein the links are fully-extended and substantially parallel to the horizontal axis; and
    - a third, post-firing stage wherein the links are disposed at an angle relative to the horizontal axis.
4. A surgical instrument according to claim 3 wherein movement of the link assembly from the first to the second stage deforms the surgical fasteners.
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5. A surgical instrument according to claim 3 wherein movement of the link assembly from the second stage to the third stage releases the surgical fasteners from the disposable loading unit.

5 6. A surgical instrument according to claim 5 wherein the link assembly biases a spring through the first and second stages of the firing stroke.

10 7. A surgical instrument according to claim 6 wherein the biasing of the spring during the movement of links assembly through the first and second stages mechanically facilitates movement of the link assembly from the second to third stages to release the surgical fasteners.

8. A surgical instrument according to claim 1 further comprising a second handle to facilitate activation of the actuator.

15 9. A surgical instrument according to claim 1 wherein the handle includes a tab which locks the handle in proximate relation to the housing after completion of the firing stroke.